Movement and Deletion Theory: A Study of Relative Clauses *

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日本語関係節では主語名詞句の中に照応詞が生起できるが、英語関係節では生起できない。本論文ではTakahashi (2002) の「空演算子はAスクランブリングできない」という主張の妥当性を吟味した上でその提案を仮定し、その枠組みのもとで新たに「移動と削除の理論」を提案することにより、日英語関係節の照応詞の認可の違いを説明する。

本論文では、はじめにKayne (1994) に従い、関係節内部に関係節主要部名詞句 (head NP) に相当する名詞句 (inside NP) が生起すると仮定する。次に、日本語では動詞のVからTへの移動があるのに対し、英語はVからTへの移動はないと主張する。Miyagawa (2001), Takahashi (2002) に従い、TのEPP素性は顕在的要素によって満たさなければならないと仮定した上で、V移動がある日本語では主語・目的語どちらもTのEPP素性を満たすことが可能になるとするMiyagawa (2001) の説を採用すると、関係節内部の目的語位置のinside NPが主語名詞句内の照応詞を束縛できる。一方、V移動がない英語では常に主語がTのEPP素性を満たすことになるため、目的語位置のinside NPは主語名詞句内の照応詞を束縛できない。このように、関係節内部の主要部に対応する顕在的要素の生起と、V移動の有無に起因するEPP素性のチェックの方法の違いから、日英語関係節における上記の照応詞認可の違いが生じると提案する。さらにinside NPはhead NPとの一致のもと、削除されなければならないと分析し、削除のメカニズムにはChomsky (2000) のフェイズ不可侵条件が関わっていると主張する。

本論文の分析では、日英語関係節に見られる「島の効果」の違いも説明できる。日本語関係節はTPを形成するのに対し、英語関係節はCPを形成すると仮定すると、島を含む関係節において、日本語関係節はhead NPとinside NPの間にCPが存在しないため、両者は同じフェイズ内にあることになりinside NPの削除が正しく行われるが、英語関係節はCPを含むため、フェイズ不可侵条件により、head NPとinside NPの一致が正しく行われず、その結果、島の効果が生じると提案する。

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1 Introduction

In Japanese and English relative clauses, anaphors can occur within the NP in the object position. Consider (1 a, b):

(1) a. Hutari-no tan'nin-no sensei-ga e_i hometa otagai-no seito$_i$
two homeroom teachers-NOM praised each other's students
'Each other's students who(m) the two homeroom teachers praised'

b. Hutari-no joosi-ga e_i sikatta otagai-no sin'nyu syain$_i$
two bosses-NOM scolded each other's new employees
'Each other's new employees who(m) the two bosses scolded'

(2) ? Each other's students$_i$ who(m) the two teachers like e_i

In (1a, b) and (2), the antecedent of the anaphor *otagai* in (1a, b) and *each other* in (2) is the subject NP of the relative clause. In the gap position in the relative clause indicated by e_i, the anaphor is bound by the antecedent. Condition A of binding theory is therefore satisfied in (1a, b) and (2). Throughout this paper, I adopt the derivational model of Condition A, which is proposed by Belletti and Rizzi (1988), Lebeaux (1988) and Epstein et al. (1998). In this model, Condition A is an anywhere condition. It can apply at any point of the cyclic derivation.[1)]

When the anaphor occurs in the subject NP, however, a surprising phenomenon occurs in Japanese relative clauses. Let us examine the following:

(3) a. ? Otagai-no tan'nin-no sensei-ga e_i hometa hutari-no seito$_i$
each other's homeroom teachers-NOM praised two students
'*Lit.* The two students who(m) each other's homeroom teachers praised'

b. ? Otagai-no joosi-ga e_i sikatta hutari-no sin'nyu-syain$_i$
each other's bosses-NOM scolded two new employees
'*Lit.* The two new employees who(m) each other's bosses scolded'

(4) * the two students$_i$ who(m) each other's teachers like e_i

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1) Principle A is a kind of 'anywhere' principle—an assumption which does not seem conceptually less desirable than the standard assumption that it applies at some arbitrary chosen level. (Belletti and Rizzi 1988: 314)

In (3a, b), the anaphor *otagai* occurs within the subject NP of the relative clause. Since the anaphor *otagai* "appears" not to be bound by the antecedent in (3a, b), it is predicted that (3a, b) are ungrammatical. Contrary to the prediction, however, (3a, b) are grammatical. This demonstrates that no violation of Condition A occurs in (3a, b). On the other hand, the equivalent English relative clause is in accord with the prediction. Since the anaphor *each other* is not bound by the antecedent within TP, Condition A is not satisfied. Japanese relative clauses thus allow the occurrence of an anaphor in the subject NP, but English relative clauses do not.

In this paper, I propose a movement and deletion theory which is based on the overt A-movement of the head NP and Fox's (2002) mechanism of deletion, and which explains the difference in anaphor licensing between Japanese and English relative clauses. Furthermore, I suggest that this movement and deletion theory can give an explanation of the difference in island effects between Japanese and English relative clauses as well.

This paper is organized as follows: Section 2 deals with Takahashi's (2002) analysis of null operators and examines the characteristics of null operators. In Section 3, I describe a movement and deletion theory which is based on Chomsky (2000), Fox (2002), Kayne (1994), Miyagawa (2001), Murasugi (1991, 2000) and Takahashi (2002), and show that the theory can explain the difference in anaphor licensing between Japanese and English relative clauses presented in (3a, b) and (4). Section 4 shows that this movement and deletion theory can accommodate the phenomena of island insensitivity in Japanese relative clauses and island sensitivity in English relative clauses. Section 5 concludes this paper.

2 Characteristics of Null Operators: Takahashi (2002)

2.1 A-Scrambling of Null Operators

First, let us consider Takahashi's (2002) analysis of null operators. Takahashi (2002) examines cleft constructions and attempts to clarify the characteristics of null operators. Following Hoji (1989), Takahashi assumes that cleft constructions involve null operator movement. Cleft constructions are represented as follows:

(5) Taroo-ga aitagatteiru no-wa Hanako-ni da.
Taroo-NOM wants-to-see that-TOP Hanako-DAT is
'It is Hanako that Taroo wants to see.'

(6) $[_{CP}OP_i[_{C'}[_{TP}$Taroo-ga t_i aitagatteiru]no]]-wa Hanako-ni da.

(Takahashi 2002: 48-9)

The null operator occurs in the object position and undergoes movement to Spec-CP. Under this assumption, Takahashi examines a sentence which involves an anaphor in the subject NP in the presuppositional clause of a cleft construction.

(7) * Otagai$_i$-no gakusei-ga aitagatteiru no-wa [Taroo to Hanako]$_i$-ni da.
each other-GEN student-NOM want-to-see that-TOP Taroo and Hanako-DAT is
'* It is Taroo and Hanako that each other's students want to see.'

(*op. cit.*, p. 49)

(7) shows that an anaphor cannot occur in the subject NP in the presuppositional clause of the cleft construction. Takahashi argues that this is explained by null operator movement analysis. Based on this analysis, (7) is represented as (8):

(8) $[_{CP}OP_i[_{C'}[_{TP}$otagai$_i$-no gakusei-ga t_i aitagatteiru]no]]-wa Taroo to Hanako$_i$-ni da.

In (8), the null operator is located in Spec-CP, an A'-position, and it cannot bind the anaphor *otagai*. Consequently, (7) violates Condition A of binding theory.

However, if the null operator undergoes clause-internal scrambling before moving to Spec-CP, the following representation will be obtained.

(9) $[_{CP}OP_i[_{C'}[_{TP}$ t'_i otagai$_i$-no gakusei-ga t_i aitagatteiru]no]]-wa Taroo to Hanako$_i$-ni da.

In (9), the operator is located in A-position at one derivational point (t'_i), and hence it can bind the anaphor *otagai*. This is not compatible with the actual grammaticality status of the sentence, and hence it should not be allowed.

Takahashi additionally examines the following cleft sentence and purports to confirm the idea that the derivation represented in (9) should not be allowed. Let us examine (10):

(10) * Soitu$_i$-no gakusei-ga aitagatteiru no-wa dare$_i$-ni desu ka ?
his-GEN student-NOM wants-to-see that-TOP who-DAT is Q
'?? Who is it that his student wants to see?' (*op. cit.*, p. 50)

In (10), a *wh*-phrase *dare-ni*, which corresponds to the object of the presuppositional clause, stays in the focus position. In addition, the presuppositional clause contains a bound pronoun. Under the null operator movement analysis, the following representation is assigned for (10):

(11) * $[_{CP}OP_i[_{C'}[_{TP}$soitu$_i$-no gakusei-ga t_i aitagatteiru]no]]-wa dare$_i$-ni desu ka

In (11), neither the trace of a null operator nor the pronoun c-commands the other. The null operator movement thus exhibits weak crossover. However, if the A-scrambling of the null operator were allowed, (10) would become grammatical. Consider (12):

(12) (*) $[_{CP}OP_i[_{C'}[_{TP}t'_i$ soitu$_i$-no gakusei-ga t_i aitagatteiru]no]]-wa dare$_i$-ni desu ka

In (12), the null operator undergoes A-scrambling and hence it is located in A-position. Since the null operator can A-bind the pronoun *soitu*, the sentence is wrongly expected to be grammatical. Takahashi (2002) determines that null operators should not undergo A-scrambling.

Lexical operators, however, can undergo clause-internal scrambling. Consider the following examples:

(13) * Hanako-wa [soitu$_i$-no gakusei-ga dare$_i$-ni aitagatteiru to] iimasita ka ?
Hanako-TOP his-GEN student-NOM who-DAT wants-to-see that said Q
'?? Who did Hanako say that his student wanted to see?'

(14) Dare$_i$-ni Hanako-wa[soitu$_i$-no gakusei-ga t_i aitagatteiru to]iimasita ka ?

(*op. cit.*, p. 51)

In (13), the bound pronoun *soitu* is not bound by the *wh*-phrase *dare*, and hence the sentence is ungrammatical. However, as represented in (14), if the *wh*-phrase moves to the sentence-initial position, the sentence becomes grammatical. If we assume that the lexical *wh*-phrase cannot be subject to A-scrambling, the sentence is considered ungrammatical. Since the *wh*-phrase *dare* undergoes movement to A'-position without landing in A-position, it cannot bind the bound pronoun *soitu*. Consequently, we need to assume that the *wh*-phrase undergoes clause-internal scrambling before moving to Spec-CP.

(15) Dare$_i$-ni Hanako-wa[t'_i soitu$_i$-no gakusei-ga t_i aitagatteiru to]iimasita ka ?

Since the *wh*-phrase *dare-ni* stays in A-position at one point of a derivation (t'_i), it can A-bind the pronoun *soitu*. Thus lexical *wh*-phrases can undergo A-scrambling, whereas null operators cannot. On the basis of these facts, Takahashi (2002) proposes the following:

(16) Null operators, unlike their lexical counterparts, are unable to undergo A-scrambling. (*op. cit.*, p. 51)

2. 2 EPP and Null Operator Movement

Takahashi (2002) further argues that null operators cannot satisfy the EPP, an idea which is also proposed by Miyagawa (2001), and offers the following *tough* constructions as evidence.

(17) a. John is easy to please t.
b.* John is easy to expect t will win the race.
c. ?? John is easy to expect Mary will see t.[2)]
d.*? John is easy to believe t to know Japanese.
e. John is easy to believe Mary to know t well. (*op. cit.*, p. 52)

In the ungrammatical sentences (17 b, d), null operators occur in the subject position, namely Spec-TP. Based on this, Takahashi (2002) suggests the following:

(18) Null operators cannot satisfy the EPP.

Miyagawa (2001) makes the same suggestion, arguing that the EPP-feature of T must be checked by an overt element. He argues that A-scrambling is triggered by the EPP. Given this, the inability of null operators to A-scramble is explained in terms of the EPP. Since a null operator cannot check the EPP-feature of T, it cannot undergo A-scrambling.

In this paper, following Takahashi (2002), I suggest that null operators cannot undergo A-scrambling to Spec-TP. I will examine Japanese relative clauses, which are generally considered to have a null element, and compare them with English

[2)] The marginal status of (17 c) is due to the fact that the NP *John* moves out of a finite clause.

relative clauses.

3 Movement and Deletion Theory and Relative Clauses

3. 1 Murasugi's (1991) *pro* Theory

This section examines fundamental characteristics of Japanese relative clauses based on Takahashi (2002), who suggests that null operators cannot undergo A-scrambling to Spec-TP. (19a, b) are Japanese relative clauses:

(19) a. Tomoko-ga e_i kawaigatteiru koneko$_i$
Tomoko-NOM cherish kitty
'The kitty which Tomoko cherishes'

b. Oda-sensei-ga e_i hometa seito$_i$
Mr. Oda-NOM praised student
'The student who(m) Mr. Oda praised'

Koneko in (19a) and *seito* in (19b) are relativized NPs. First of all, we must discuss the categorization of Japanese relative clauses. Based on Murasugi (1991) and the fact that Japanese relative clauses do not have a relative pronoun, I determine that Japanese relative clauses are TPs.[3] Murasugi (1991) hypothesizes

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[3] Murasugi (1991) suggests that Japanese relative clauses are IP (TP in the Minimalist Program) from the following data:

(i) a. the reason [(why$_i$)[Mary thinks[that John left e_i]]]
b. *Mary-ga [John-ga e_i kaetta to] omotte iru] riyuu$_i$
NOM NOM left C thinking reason
'the reason Mary thinks that John left'

(ii) [John-ga e_i kaetta] riyuu$_i$]
NOM left reason
'the reason John left' (Murasugi 1991: 140)

(ia) shows that relativization from a pure adjunction position is unbounded in English. On the other hand, as the contrast between (ib) and (ii) shows, relativization from a pure adjunct is clause-bound in Japanese. Murasugi (1991) claims that the difference between (ia) and (ib) is explained in terms of the empty category principle (ECP), if we assume that Japanese relative clauses are TPs, while English relative clauses are CPs, and that only X-zero categories can be antecedent proper governors. In (ia), an English relative clause, the traces satisfy the ECP. The lower C can antecedent-govern the initial trace, because it receives the same index as the intermediate trace through the Spec-head agreement. The intermediate trace is antecedent-governed by the higher C, which receives the same index as *why* or the empty operator through Spec-head agreement. Therefore, movement of the most deeply embedded *why* is possible.

(iii) $[_{NP}$ the reason$_i$$[_{CP}$ why $(OP)[_{C'}$ C$_i[_{TP}$ T$[_{VP}$ V$[_{CP}$ $t'_i[_{C'}$ C$_i[_{IP}\cdots t_i\cdots]]]]]]]]$

Given that Japanese relative clauses are TPs, the ungrammaticality of (ib) can be explained, since the relative operator is adjoined to TP, it does not stay in X-zero position. The intermediate trace is not properly governed, hence the resulting violation of the ECP.

(iv) $[_{NP}[_{TP}$ $OP_i[_{TP}[_{VP}[_{CP}$ t'_i $[_{C'}[_{TP}\cdots t_i\cdots]$C]]V]T]]riyuu$_i$]

that Japanese relative clauses can be explained by the lack of null operator movement if we assume that they form a TP. This idea can explain (20), which shows that the relativization of an argument is unbounded.

(20) [Mary-ga [John-ga t_i katta to] omotte iru] hon$_i$
NOM NOM bought C thinking book
'the book Mary thinks that John bought' (Murasugi 1991: 140)

Murasugi says that this island insensitivity is supported by the occurrence of *pro*. Since *pro* can occur in (20), no movement occurs in the relative clause. Hence, Japanese relative clauses do not show island sensitivity.

Now let us consider (19a, b) under Murasugi's (1991) *pro* theory. Since *pro* is a null element, it cannot undergo A-scrambling under the assumption of (16). The structures of (19a, b) are then represented as (21a, b):

(21) a. [$_{NP}$[$_{TP}$ Tomoko-ga *pro*$_i$ kawaigatteiru]koneko$_i$]
b. [$_{NP}$[$_{TP}$ Oda-sensei-ga *pro*$_i$ hometa]seito$_i$]

Given (21a, b), it may seem that positing null elements in Japanese relative clauses is a valid analysis. As we have seen in Section 1, however, there are some Japanese relative clauses in which we cannot use null elements. Let us examine such relative clauses in the following sections.

3. 2 The Licensing of Anaphor within the Subject NP

In Japanese relative clauses, the anaphor *otagai* 'each other' can occur within the subject NP in a relative clause. Consider (3 a, b) again:

(3) a. ? Otagai-no tan'nin-no sensei-ga e_i hometa hutari-no seito$_i$
b. ? Otagai-no joosi-ga e_i sikatta hutari-no sin'nyu-syain$_i$

The degraded grammatical status is not due to the violation of Condition A of binding theory. Let us compare (3a, b) with (22b), in which Condition A is violated.

Thus, the difference in category of relative clauses in English and Japanese provides an explanation of the relativization of pure adjuncts. Following Murasugi (1991) and the fact that a relative pronoun does not occur in Japanese, I would suggest that Japanese relative clauses are TP.

(22) a. Hutari-no seito-ga otagai-no tan'nin-no sensei-o hometa (koto).
two students-NOM each other's homeroom teachers-ACC praised fact
'The two students praised each other's teachers.'

b.?* Otagai-no tan'nin-no sensei-ga hutari-no seito-o hometa (koto).[4]
each other's homeroom teachers-NOM two students-ACC praised fact
'Each other's homeroom teachers praised the two students.' (cf. Saito 1992: 74)

In (22b), the anaphor *otagai* is not bound by an antecedent *hutari-no seito*, and hence the sentence results in the violation of Condition A. Since (3 a, b) are much more acceptable than (22b), we can suppose that the anaphor *otagai* in (3a, b) are bound by the antecedent.

Now, let us consider (3a, b) again, this time positing *pro*. Since *pro* cannot undergo A-scrambling to Spec-TP under the assumption of (16), *pro* stays in the base position. (3a, b) are then represented as (23a, b):

(23) a. $[_{NP}[_{TP}$ otagai-no tan'nin-no sensei-ga$_i[_{vP}\ t_i[_{VP}\ pro_j\ t_V]t'_V]$hometa$_V]$hutari-no seito$_j]$

b. $[_{NP}[_{TP}$ otagai-no joosi-ga$_i[_{vP}\ t_i[_{VP}\ pro_j\ t_V]t'_V]$sikatta$_V]$hutari-no sin'nyu syain$_j]$

In (23a, b), *pro* stays in the VP complement position of the relative clause. The anaphor *otagai,* therefore, cannot be bound by the null element at every stage during derivation. Since (3a, b) are grammatical, however, we need to explain this surprising anaphor licensing effect in Japanese relative clauses.

3. 3 Japanese Relative Clauses: V-movement and A-Movement of Overt NP

As we have seen in the previous section, *pro* cannot occur in the relative clause when an anaphor occurs within the subject NP in the relative clause. In this section, I will argue that Japanese relative clauses involve A-movement of the overt NP and will solve one of the problems uncovered in the previous section.

Assuming that Takahashi's analysis is correct, *pro*, which is the antecedent of the anaphor *otagai*, cannot occur in the relative clause when an anaphor occurs within the subject NP in a relative clause, because it stays in the base position at

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[4] Saito's(1992: 74) original example is the following:
(i) ?* Otagai-no sensei-ga karera-o hihansita (koto).
each other-GEN teacher-NOM they-ACC criticized fact
'Each other's teachers criticized them.' (Saito 1992: 74)

every stage during derivation. We must therefore suppose that an overt element occurs in the relative clause as the antecedent and that it binds the anaphor within the relative clause.

Using Kayne's (1994) intuition, I propose that an overt NP, which corresponds to a relativized NP, occurs in the gap position of the relativized NP. For ease of explanation, I refer to a relativized NP as "a head NP" and an NP occurring in a relative clause as "an inside NP." Based on the above assumption, an inside NP occurs in the VP-complement position in (3a, b), as represented in (24a, b).

(3) a. ? Otagai-no tan'nin-no sensei-ga hometa hutari-no seito
b. ? Otagai-no joosi-ga sikatta hutari-no sin'nyu-syain

(24) a. $[_{NP}[_{TP}[_{vP}$ otagai-no tan'nin-no sensei-ga$[_{VP}$ hutari-no seito $t_V]t'_V]$hometa$_V]$hutari-no seito$]$
(inside NP) (head NP)

b. $[_{NP}[_{TP}[_{vP}$ otagai-no joosi-ga$[_{VP}$ hutari-no sin'nyu syain $t_V]t'_V]$sikatta$_V]$hutari-no sin'nyu syain$]$
(inside NP) (head NP)

In (24a, b), if an inside NP, which is the antecedent of the anaphor *otagai,* stays in its position below the anaphor, the inside NP cannot bind the anaphor.

Next, let us adopt Miyagawa's (2001) hypothesis regarding the EPP-feature of T. Miyagawa suggests, on the basis of the following data, that A-scrambling is triggered by the EPP-feature of T.

(25) a. Zen'in-ga sono tesuto-o ukenakatta (yo/to omou).
all-NOM that test-ACC take-NEG-PAST
'All did not take that test.' (*not > all, all > not)

b. Sono tesuto-o$_i$ zen'in-ga t_i ukenakatta (yo/to omou)
that test-ACC all-NOM t_i take-NEG-PAST
'That test, all didn't take.' (not > all, (all > not)) (Miyagawa 2001: 299)

He hypothesizes that the movement of the verbal complex (V-v) to T enables both a subject and an object to be equidistant from T. Hence, either a subject or an object can check the EPP-feature of T.

(26) a. $[_{TP}$ Zen'in-ga$_i$ $[_{vP}$ $t_i[_{VP}$ tesuto-o $t_V]t'_V]$ukenakatta$_V]$
b. $[_{TP}$ Tesuto-o$_j[_{vP}$ zen'in-ga$[_{VP}$ t_j $t_V]t'_V]$ukenakatta$_V]$

In (26a), which corresponds to (25a), the subject *zen'in-ga* checks the EPP-

feature of T. The quantifier *zen'in* is not c-commanded by the negation, and hence *zen'in* takes scope over the negation. On the other hand, in (26 b), which corresponds to (25b), the object *testo-o* checks the EPP-feature of T. Since *zen'in* is therefore c-commanded by the negation, the negation takes scope over *zen'in*. Given that scrambling is triggered by EPP, we can predict the correct scope relation.

Now let us consider (24a, b) again in the light of Miyagawa's mechanism: either a subject or an object can check the EPP-feature of T in Japanese. In (24a), the subject NP *otagai-no tan'nin-no sensei* and the object NP *hutari-no seito*, namely the inside NP, become equidistant from T, because of V-movement to T. If the subject NP checks the EPP-feature of T, this derivation would lead to the violation of Condition A. Now let us assume that the object NP, namely the inside NP, checks the EPP-feature of T. In this case, the inside NP is attracted to Spec-TP by the EPP-feature of T.

(27) a. $[_{NP}[_{TP}$ hutari-no seito$_i$ $[_{vP}$ otagai-no tan'nin-no sensei-ga hutari-no seito$_i$ $t_V]$
(inside NP) ↑ (inside NP)
hometa$_V]$ hutari-no seito$_i]$
(head NP)

b. $[_{NP}[_{TP}$ hutari-no sin'nyu-syain$_i$ $[_{vP}$ otagai-no joosi-ga hutari-no sin'nyu-syain$_i$ $t_V]$
(inside NP) ↑ (inside NP)
sikatta$_V]$ hutari-no sin'nyu-syain$_i]$
(head NP)

The inside NP, which stays in Spec-TP, can bind the anaphor *otagai* in the subject occurring in Spec-*v*P. In the analysis presented here, the derivational point exists where the anaphor can be bound by the antecedent. Hence, we are able to explain why (3 a, b) do not violate Condition A. It may seem that there are multiple occurrences of the same NP, namely the head NP and the inside NP. We solve this problem by positing a mechanism of deletion which will be explored in 3.5.[5)]

[5)] One of the reviewers questioned whether the movement of the inside NP to Spec-TP is an obligatory operation or a last resort operation. I would like to suggest that this movement is a last resort type, because this movement is not a type of movement that checks off the *wh*-feature of the head of CP. For example, the subject in the relative clause, not the inside NP, must undergo raising to Spec-TP in the following:

(i) [*e* hutari-no seito-o$_i$ hometa] otagai$_i$-no tan'nin-no sensei]
two students-ACC praised each other's homeroom teachers

3．4 English Relative Clauses: Lack of V Movement

Next let us subject anaphor licensing in English relative clauses to the same analysis as that presented above. In contrast to Japanese relative clauses, an anaphor occurring within the subject NP in the relative clause cannot be licensed by the head NP in English relative clauses.

(28) * the two students who(m) each other's teachers like

In the analysis presented here, an inside NP, which corresponds to the head NP, occurs in the relative clauses as represented below:

(29) $[_{CP}[_{TP}\ T[_{vP}$ each other's teachers $[_{VP}$ <u>like the two students</u>$]]]]$
(inside NP)

In (28), if the inside NP *the two students* checks the EPP-feature of T as it does in Japanese relative clauses, the inside NP could bind the anaphor *each other*. Since (28) is ungrammatical, we can conclude that the same derivation does not take place in English relative clauses.

I propose that an inside NP which occurs as an object in the relative clause cannot check the EPP-feature of T in English. I suggest that this is due to lack of V-movement to T in English. Fukui (1986), Kuroda (1988) and Kitagawa (1986) suggest that a subject occurring in Spec-vP must be raised to Spec-TP in English whereas it need not be raised in Japanese. Fukui (1986) argues that the difference is related to whether there is V-movement to T or not. He suggests that verbs in English do not undergo V-movement to T whereas verbs in Japanese do.

Due to lack of V-movement, the subject NP is closer to Spec-TP than the object NP. As a consequence, the EPP-feature of T must be satisfied by the subject NP in English. There are no derivational points where the anaphor is bound by the

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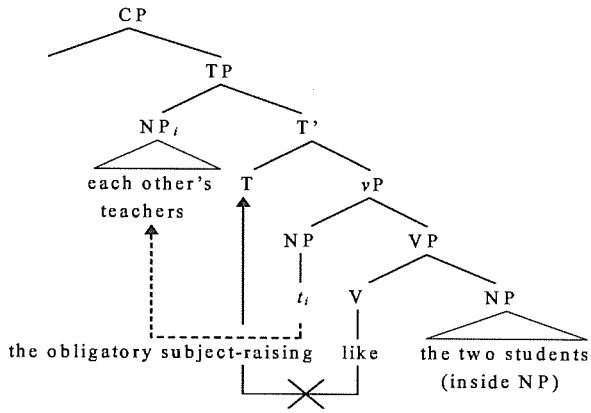
'*Lit.* the each other$_i$'s homeroom teachers who praised two students$_i$

(ii) $[_{TP}$hutari-no seito-o$_j[_{vP}$ <u>otagai-no tan'nin-no sensei$_i$</u> $t_j t_V]$hometa$_V]$<u>otagai-no tan'nin-no sensei$_i$</u>
(inside NP) (head NP)

In (i), the anaphor *otagai* is in the gap position, namely the subject position in the relative clause. However, if an inside NP occurring in this gap position moves to Spec-TP, the anaphor is not bound by its antecedent, causing a violation of Condition A. Hence, the object must undergo movement to Spec-TP, as represented in (ii). From this, I argue that the movement in the relative clause is a last resort operation. The reviewer also pointed out the possibility of the occurrence of *pro* in the gap position of the relative clause. I suggest that an overt inside NP occurs in the gap position even in the case where the inside NP does not undergo movement.

antecedent NP. As a result, Condition A is not satisfied.

(30)



Thus, I suggest that the existence or non-existence of V-movement account for the difference in anaphor licensing between Japanese and English relative clauses.

3．5 Deletion of Inside NPs

3．5．1 Fox (2002)

In previous sections, I have suggested that an inside NP which corresponds to the head NP occurs in the relative clause. If the inside NP is left undeleted, the multiple occurrences of the same NP, namely the head NP and inside NPs, may cause a problem in the PF component.

In this section I will posit a deletion theory and argue that inside NPs are deleted in the narrow syntax. First of all, let us consider Fox's (2002) theory of deletion of NPs in relative clauses, on which my deletion theory is based. Fox assumes that the deletion of relative clauses involves "movement to Comp" of a CP-internal NP and that the internal NP is deleted under identity with a CP-external NP.[6)]

(31) Every boy [$_{CP}$ ~~boy~~ Mary likes ~~boy~~]. (Fox 2002: 75)

Fox's basic idea, that movement occurs in a relative clause, is similar to the view

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[6)] Fox (2002) assumes that the NP in Spec-CP is not interpreted but that movement turns the relative clause into a predicate that combines with the CP-external NP by predicate modification. He suggests that Trace Conversion yields the following structure.

(i) every [boy λx.Mary likes the boy x]
meaning: λP. ∀x ((boy(x) & Mary likes the boy x) → P(x)) (Fox 2002: 75)

presented in this paper. I then adopt Fox's idea of deletion, namely an inside NP is deleted under identity with a head NP. However, Fox does not comment on the deletion of the NP in the base position. I therefore suggest the following:

(32) When an inside NP undergoes movement in a relative clause, it moves and its copy is deleted if and only if a moved inside NP c-commands its copy.

(32) is based on Harada's (1973) idea of Equi-NP deletion in the analysis of comparative deletion and sentence pronominalization.

(33) Equi-NP Deletion
When a deletion transformation operates on a pair of identical elements, one asymmetrically commanding the other, it is the commanded, rather than the commanding, element that is deleted by that transformation.
(Harada 1973)

I adopt Harada's intuition and apply it to deletion of the copy of an inside NP in relative clauses.

3. 5. 2 The Mechanism of Deletion and the PIC

We have assumed that an inside NP is deleted under identity with a head NP. However, we have not restricted the scope of identification between an inside NP and a head NP. I then suggest that Chomsky's (2000) phase impenetrability condition (PIC) is closely related to this issue. The PIC is defined as follows:

(34) · The Phase Impenetrability Condition (PIC)
In phase α with head H, the domain of H is not accessible to operations outside α, only H and its edge are accessible to such operations.
(Chomsky 2000: 108)

The PIC dictates that the head and the edge of a phase can access the succeeding phase. Following Takahashi (2001), I make the assumption that CPs form a phase but vPs do not. Consequently, an inside NP which will be deleted under identity with a head NP must occur in the same phase as the head NP or it must occur in Spec-CP.

To summarize, I have proposed the following deletion theory:

(35) Deletion Theory

An inside NP must be deleted under identity with a head NP. The mechanism of deletion obeys the phase impenetrability condition (PIC). When an inside NP undergoes movement within a relative clause, it moves and its copy is deleted if and only if the moved inside NP c-commands its copy.

3．5．3 Deletion in Relative Clauses

Let us examine (3 a, b) again under the deletion mechanism proposed in (35).

(3) a. ? Otagai-no tan'nin-no sensei-ga hometa hutari-no seito
b. ? Otagai-no joosi-ga sikatta hutari-no sin'nyu-syain

The structures of (3 a, b) are (36 a, b) respectively:

(36) a. $[_{NP}[_{TP}$hutari-no seito$_i$ (inside NP)$[_{vP}$ otagai-no tan'nin-no sensei-ga$[_{VP}$ hutari-no seito$_i$ (inside NP)
$t_V]t'_V]$hometa$_V]$hutari-no seito (head NP)$]$

b. $[_{NP}[_{TP}$hutari-no sin'nyu syain$_i$ (inside NP)$[_{vP}$ otagai-no joosi-ga $[_{VP}$hutari-no sin'nyu (inside NP)
syain$_i t_V]t'_V]$ sikatta$_V]$ hutari-no sin'nyu syain (head NP)$]$

As we considered in 3.3, the inside NP occurs in the VP-complement position and it is attracted to Spec-TP to check the EPP-feature of T. The attracted inside NP located in Spec-TP c-commands the copy in the base position. Therefore the copy is deleted.

After that, the head NP merges with TP. There are no CPs between the inside NP located in Spec-TP and the head NP, and hence the inside NP is deleted under identity with the head NP by the PIC. Consequently, there are no multiple occurrences of the same NP in PF.

Next, let us consider an English relative clause.

(37) He is a man who(m) Mary likes.

(38) $[_{NP}$a man (head NP) $[_{CP}$a man$_j$ $[_{C'}$who(m) C $[_{TP}$Mary$_i$T$[_{vP}t_i$ likes$_V$ $[_{VP}$ a man$_j$ $t_V]]]]]]$ (inside NP)

The inside NP *a man* occurs in the VP-complement position. The EPP-feature of T is checked by the subject NP *Mary* because of lack of V-movement. Following Fox (2002), let us suppose that the inside NP *a man* is moved to Spec-CP leaving a copy. The moved inside NP located in Spec-CP c-commands its copy in the base position, and hence the copy is deleted.

Next, the head NP *a man* merges with CP. The head NP and the inside NP in Spec-CP do not occur in the same phase, but the inside NP occurs at the edge of a phase. According to the PIC, the inside NP is accessible to the next phase. Consequently, the inside NP is deleted under identity with the head NP.

The deletion mechanism proposed in this paper is thus able to explain why there are no multiple occurrences of the same NP in the PF component.

3. 6 Summary

In Section 3, following Takahashi (2002), I have assumed that null operators cannot undergo A-scrambling, and hence that an inside NP, which corresponds to a head NP, must occur in the gap position of the head NP. In addition, I have assumed that the EPP-feature of T must be checked by an overt element. In Japanese, V-movement to T guarantees that either a subject or an object can check the EPP-feature of T. In English, however, a subject must check the EPP-feature of T because of lack of V-movement. I have suggested that the inside NPs must be deleted under identity with the head NP and that the deletion mechanism obeys the PIC. I call the analysis presented here "movement and deletion theory." To summarize, movement and deletion theory is defined as follows:

(39) Movement and deletion theory

- In relative clauses, an inside NP, which corresponds to a head NP, occurs in the gap position.
- The EPP-feature of T must be checked by an overt element. In Japanese relative clauses, either a subject NP or an object NP can check the EPP-feature of T because of V-movement. In English relative clauses, only a subject NP can check the EPP-feature of T, because English lacks V-movement.
- An inside NP must be deleted under identity with a head NP. The

mechanism of deletion obeys the PIC. When an inside NP undergoes movement within a relative clause, it moves and its copy is deleted if and only if the moved inside NP c-commands its copy.

4 Consequence: Island Effects

As Kuno (1973) and Murasugi (1991, 2000) point out, relativization in Japanese does not exhibit island effects. On the other hand, English relativization is island-sensitive.

(40) $[_{NP}\ [_{TP}\ [_{NP}\ [_{TP}\ e_i\ e_j$ kiteiru] yoohuku$_j$-ga] yogoreteiru] sinsi$_i$]
wearing suit-NOM dirty gentleman
'*Lit.* a gentleman who the suit that (he) is wearing is dirty' (Kuno 1973: 239)

(41) * the girl who I heard the rumor that John loves

In this section, I show that the theory presented in this paper can also explain the difference in island effects in Japanese and English relative clauses.

4.1 Kuno (1973) and Murasugi (1991, 2000)

First of all, let us examine characteristics of (40), which includes an island. If we were to suppose that the head NP *sinsi* is extracted from the relative clause, the extraction would cross an island and cause a subjacency violation. However, (40) does not exhibit any such violation. Kuno (1973) also found that an overt resumptive pronoun can occur in the position of a gap.

(42) ? $[_{NP}[_{TP}[_{NP}[_{TP}$ kare$_i$-ga e_j kiteiru] yoohuku$_j$-ga] yogoreteiru] sinsi$_i$]
he-NOM wearing suit-NOM dirty gentleman
'*Lit.* a gentleman who the suit that (he) is wearing is dirty' (*op. cit.*, p. 239)

In (42), the resumptive pronoun *kare* 'he' occurs in the position of the gap.

On the basis of the island insensitivity and the existence of resumptive pronouns, Kuno (1973) and Murasugi (1991, 2000) suggest that the extraction of the head NP does not occur in Japanese relative clauses. Murasugi proposes that *pro* occurs in the position of the gap and thereby explains the island insensitivity.

(43) $[_{NP}[_{TP}[_{NP}[_{TP}\ pro_i\ pro_j$ kiteiru] yoohuku$_j$-ga] yogoreteiru] sinsi$_i$]

The existence of *pro* guarantees the merge of the head NP. Hence, the head NP does not undergo movement from a relative clause.

4. 2 Island Effects in Japanese Relative Clauses

4. 2. 1 The "pro" analysis

We have shown that the anaphor *otagai* can occur in the subject NP in Japanese relative clauses. Now let us consider a sentence in which the anaphor *otagai* occurs in the subject NP of an island.

(44) ? Otagai-no tan'nin-no sensei-ga e_i e_j hometa heya$_j$-de nakidasita hutari-no seito$_i$
each other's homeroom teachers-NOM praised in the room started crying two students
'*Lit.* the two students$_i$ who started crying in the room where each other$_i$'s teachers praised'

Let us now examine (44) using *pro*. Since *pro* is a null element, it stays in the base position throughout the derivational process under the assumption of (16).[7]

(45) $[_{NP}\ [_{TP}pro_i[_{PP}[_{TP}$ otagai-no tan'nin-no sensei-ga pro_i pro_j hometa]heya-de$_j$] nakidasita] hutari-no seito$_i$]

The anaphor *otagai* must be bound by the antecedent *hutari-no seito* within TP, where it occurs. Since the null element cannot undergo A-scrambling to Spec-TP, *pro* stays in the base-generated position at every stage during the derivation. The antecedent *pro*$_i$, which refers to the head NP *hutari-no seito*, has stayed in its position below the anaphor. As a result, the anaphor *otagai* cannot be bound. Since (45) is grammatical, however, it is concluded that there is no violation of Condition A. I

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[7] One of the reviewers pointed out the possibility that the anaphor *otagai* is bound by *pro*$_i$ in Spec-TP in the matrix clause in (45). The following shows that this *pro* cannot bind the anaphor in Spec-TP in the embedded clause:

(i) $[_{NP}[_{TP}$ Mary-ga$[_{PP}[_{TP}$otagai$_i$-no tan'nin-no sensei-ga pro_i hometa]heya-de] pro_i sikatta]hutari-no seito$_i$]
-NOM each other's homeroom teacher-NOM praised in the room scolded two students
'*Lit.* the two students$_i$ who(m) Mary scolded in the room where each other$_i$'s teachers praised'

(i) is grammatical and the NP *hutari-no seito* is regarded as the antecedent of the anaphor *otagai*. Since *Mary* in Spec-TP in the matrix clause is singular, it cannot be the antecedent of the anaphor *otagai*. If the element occurring in Spec-TP in the matrix clause binds the anaphor in the embedded relative clause, (i) would become ungrammatical. The grammaticality of (i) thus shows that the anaphor *otagai* is bound by the antecedent in the relative clause. Because of this fact, I argue that *pro*$_i$ in the Spec-TP in the matrix clause does not bind the anaphor *otagai* in (45).

therefore examine such relative clauses using my movement and deletion theory.

4．2．2 Analysis using Movement and Deletion Theory

Let us consider (45), which includes an island, using movement and deletion theory. First of all, let us examine the most deeply embedded clause. In movement and deletion theory, an inside NP occupies the gap position of the relativized NP (head NP). Consequently, the inside NP *hutari-no seito* and the inside NP *heya* occur in the original position.

(46) $[_{TP}[_{vP}$ otagai-no tan'nin-no sensei-ga heya(-de) hutari-no seito(-o) hometa]]
(inside NP) (inside NP)

Spec-TP must be occupied by an overt element. As mentioned above, V-movement to T makes both the subject and the object NP equidistant from T in Japanese. Let us assume then that the inside NP *hutari-no seito*, which is the object of the verb *hometa*, satisfies the EPP-feature of T. After raising the inside NP, the structure is represented as follows:

(47) $[_{TP}$ hutari-no seito$_i$ $[_{vP}$ otagai-no tan'nin-no sensei-ga heya(-de) ~~hutari-no~~
(inside NP) (inside NP)
~~seito$_i$~~ t_V]hometa$_v$]

The moved inside NP located in Spec-TP c-commands its copy, and hence the copy is deleted. At this derivational point, the anaphor *otagai* in Spec-vP is bound by the antecedent *hutari-no seito* in Spec-TP. Consequently, we can correctly explain why (45) does not yield a violation of Condition A.

Let us examine the following derivations. After the TP in (47) is formed, the head NP *heya* merges with this TP. As stated above, an inside NP *heya*, which is located in vP, must be deleted under identity with the head NP. Since there are no CP boundaries between the head NP and the inside NP, deletion of the inside NP is successfully accomplished.

(48) $[_{PP}[_{TP}$hutari-no seito$_i$ $[_{vP}$otagai-no tan'nin-no sensei-ga ~~heya(-de)~~
~~hutari-no seito$_i$~~ t_V] hometa$_V$]heya-de] (inside NP(PP))
(head NP(PP))

Next, the higher TP is formed. Let us assume here that *pro*, which refers to the NP *hutari-no seito*, occurs in Spec-vP.

(49) [$_{TP}$ [$_{vP}$ *pro*$_i$ [$_{PP}$[$_{TP}$ hutari-no seito$_i$[$_{vP}$otagai-no tan'nin-no sensei-ga t_i heya(-de) t_V] hometa$_V$] heya-de] nakidasita]]

The EPP-feature of T must be satisfied. *Pro* in Spec-vP cannot satisfy it, because it lacks phonetic content. I propose that the PP [*Otagai-no tan'nin-no sensei-ga hometa heya-de*] satisfies it.[8] Collins (1997) shows that a locative PP can satisfy the EPP-feature of T:[9]

(50) Down the hill rolled John. (Collins 1997: 27)

Collins suggests the possibility that the EPP-feature of T can be checked by any category. However, Toyoshima (2000) argues that neither AP nor VP can check the EPP-feature of T:

(51) a. * [$_{AP}$ Nude]rolled$_V$[$_{VP}$ John t_V down the hill t_{AP}].
b. * [$_{VP}$ laughing]rolled$_V$[$_{VP}$John t_V down the hill t_{VP}]. (Toyoshima 2000: 268)

Following Toyoshima (2000), I suggest that locative PP as well as DP can satisfy the EPP-feature of T. The PP mentioned above is therefore raised to Spec-TP.

(52) [$_{TP}$[$_{PP}$[$_{NP}$[$_{TP}$hutari-no seito [$_{vP}$otagai-no tan'nin-no sensei-ga ~~heya(-de) hutari-no seito$_i$~~ t_V] hometa$_V$] heya] de] [$_{vP}$ *pro*$_i$ t_V] nakidasita$_V$]

After the scrambling of the PP to Spec-TP, the head NP *hutari-no seito* merges with this TP. The inside NP of *hutari-no seito* within PP must be deleted under identity with the head NP. Since there are no CP boundaries between the head NP and the inside NP, the inside NP undergoes deletion. Consequently, only one occurrence of *hutari-no seito* is spelled out to PF.

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[8] Strictly speaking, since the inside NP *hutari-no seito* has not undergone deletion, PP [*hutari-no seito otagai-no tan'nin-no sensei-ga hometa heya*] is attracted to Spec-TP.

[9] One of the reviewers asked whether a locative PP can satisfy the EPP-feature of T in Japanese as well as in English. Miyagawa (2001) suggests that a *wh*-PP, but not a "normal" PP, can satisfy the EPP-feature of T, according to scope data. Based on this, the normal PP [*otagai-no tan'nin-no sensei-ga hometa heya-de*] cannot check the EPP-feature of T. However, in (49), under the assumption that null elements cannot satisfy the EPP-feature of T, there are no other elements that can check the EPP-feature. I then argue that this PP checks the EPP-feature of T as a last resort. Further research is needed on this issue.

(53) $[_{NP}[_{TP}[_{PP}[_{NP}[_{TP}$ ~~hutari-no seito$_i$~~ $[_{vP}$ otagai-no tan'nin-no sensei-ga ~~heya(-de)~~
(inside NP)
hutari-no seito$_i$ t_V] hometa$_V$]heya]de] $[_{vP}$ *pro*$_i$ t_V] nakidasita$_V$] hutari-no seito$_i$
(head NP)

Japanese relative clauses thus do not include any movement from islands under movement and deletion theory. Hence, the theory can explain why Japanese relative clauses do not show island sensitivity.[10]

4. 3 Island Effects in English Relative Clauses

Next, let us consider English relative clauses, which show island sensitivity. Consider (41) again:

(41) * the girl who I heard the rumor that John loves

Movement and deletion theory can also explain island sensitivity in English relative clauses. First of all, let us consider the most deeply embedded clause. As discussed above, English relative clauses form CP. An inside NP *the girl* occurs in the VP-complement position. Since English lacks V-movement to T, the EPP-feature of T is satisfied by the subject *John*. When CP is completed, the inside NP *the girl* is raised to Spec-CP.

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[10] One of the reviewers cast doubt on the validity of the phase impenetrability condition (PIC) in the deletion theory (35). S/he mentioned that the PIC is a condition that is also applied to movement, so relative clauses in which deletion violates the PIC has already violated the PIC in the movement process of a relative head. However, the following sentence supports the idea that the PIC is also needed in the deletion theory. (i) is ill-formed, despite the fact that movement of a relative head does not violate the PIC.

(i)* $[_{NP}[_{TP}$ John-ga$[_{CP}[_{TP}$Mary-ga$[_{PP}[_{TP}$otagai$_i$-no tan'nin-no sensei-ga hometa] heya-de]
-NOM -NOM each other's homeroom teachers-NOM praised in the room
sikatta] to] itta] hutari-no seito$_i$]
scolded COMP said two students
'*Lit.*, the two students$_i$ who(m) John said that Mary scolded in the room where each other$_i$'s teachers praised

The representation before the application of the deletion theory is as follows:

(ii) $[_{NP}[_{TP1}$John-ga$_i[_{vP}t_i[_{CP}[_{TP2}$Mary-ga$_j[_{vP}$ $t_j[_{PP}[_{TP3}$**hutari-no seito**$_k[_{vP}$ otagai-no tan'nin-no sensei-ga t_k t_{V1}] hometa$_{V1}$] heya-de] t_{V2}] sikatta$_{V2}$] to] t_{V3}] itta$_{V3}$] hutari-no seito]

In the most deeply embedded relative clause (TP 3), the inside NP *hutari-no seito* satisfies the EPP-feature of T. In TP 1 and TP 2, the subject checks the EPP-feature of T. Although there is no violation in terms of movement, the sentence (ii) is deemed ungrammatical. We can explain the ungrammaticality of (ii) in terms of deletion. The inside NP *hutari-no seito* must be deleted under identity with the head NP. However, due to the PIC, the deletion of this inside NP is not successfully carried out. From this, I argue that the PIC is a requisite condition in the deletion theory.

(54) $[_{CP}\underline{\text{the girl}_j}$ that $[_{TP}\text{John}_i$ $[_{vP}$ t_i loves ~~the girl$_j$~~]]]
(inside NP) (inside NP)

The inside NP is located in Spec-CP and c-commands its copy. Hence, the inside NP in the original position is deleted.

Next, the higher clause is formed. The EPP-feature of T is checked by the subject NP, namely *I*. I argue here that the inside NP *the girl*, which is located at the edge of the previous phase, is raised to Spec-CP in this clause instead of the occurrence of *who*. This results in the following structure:

(55) $[_{CP}\underline{\text{the girl}_j}[\boxed{_{TP}}]\text{I}[_{vP}\text{heard}[\boxed{_{NP}}]$ the rumor $[_{CP}\underline{\text{the girl}_j}\text{that}[_{TP}\text{John}_i[_{vP}t_i\text{loves}$ ~~the girl$_j$~~]]]]]]
(inside NP) (inside NP) (inside NP)

This movement of the inside NP *the girl* crosses the NP and TP boundaries. Therefore the movement violates the subjacency condition.

Let us consider (56), which shows long-distance extraction.[11]

(56) the girl who I heard that John loves

An inside NP *the girl* occurs in the VP-complement position in the most deeply embedded clause and it moves to Spec-CP in that clause. Since the inside NP in Spec-CP c-commands its copy, the copy is deleted.

(57) $[_{CP}$ $\underline{\text{the girl}}$ that $[_{TP}$ John loves ~~the girl~~]]
(inside NP) (inside NP)

The inside NP moves to Spec-CP in the higher clause in a cyclic fashion and deletes its copy.

(58) $[_{CP}$ $\underline{\text{the girl}}$ who $[_{TP}$ I heard $[_{CP}$ ~~the girl~~ that $[_{TP}$ John loves ~~the girl~~]]]]
(inside NP) (inside NP) (inside NP)

Next, the head NP merges with CP. As the PIC stipulates, the inside NP in Spec-CP is accessible to the next phase. The inside NP is then deleted under identity with the

[11] The contrast between (41) and (56) was pointed out to me by Yoichi Miyamoto and Masao Ochi. I am grateful for their suggestion.

head NP.

(59) [NP the girl [CP ~~the girl~~ who [TP I heard [CP ~~the girl~~ that [TP John loves ~~the girl~~]]]]]
(head NP) (inside NP) (inside NP) (inside NP)

This explains the contrast between (41) and (56) and thus movement and deletion theory can account for island sensitivity in English relative clauses.

5 Conclusion

In this paper, I have discussed the difference in anaphor licensing between Japanese and English relative clauses and have explained the difference by proposing morement and deletion theory. In movement and deletion theory, we have assumed that an inside NP, which corresponds to the head NP, occurs in the relative clause and that it is deleted under identity with the head NP. Following Miyagawa (2001) and Takahashi (2002), we have assumed that the EPP-feature of T must be checked by an overt element. Following Miyagawa (2001), I have suggested that either a subject or an object can satisfy the EPP-feature in Japanese. In English, however, we have assumed that the subject must be raised to Spec-TP because of lack of V-movement. In Japanese relative clauses, an inside NP in the object gap position can be attracted to Spec-TP because of V-movement to T. I have argued that the difference in anaphor licensing is explained in terms of the presence or absence of V-morement and the difference in an element which checks the EPP -feature of T.

I have also suggested that movement and deletion theory can explain the difference in island effects between Japanese and English relative clauses. In Japanese relative clauses, the deletion of inside NPs under identity with a head NP takes place because there are no CP boundaries between a head NP and an inside NP, and hence there is no PIC violation. In English relative clauses however, the extraction of an inside NP interferes with the subjacency condition, and hence they show island sensitivity.

In this paper, I have argued that Takahashi's (2002) idea that null operators cannot undergo A-scrambling to Spec-TP is plausible and we are able to apply Takahashi's mechanism to relative clauses by means of movement and deletion theory.

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